An Empirical Study of the Effects of Social Security Reforms on Claiming Behavior and Benefits Receipt Using Public-Use Administrative Micro Data†

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Abstract

In the last few years the United States Social Security Old Age Benefit system has undergone some of the most significant changes since its inception. We have seen in a short period of time the implementation of the phased increase in the Full Retirement Age (FRA) with the resulting increase in the penalty for claiming benefits early, the elimination of the Earnings Test for those above the FRA, and the incremental increase in the Delayed Retirement Credit (DRC) for those claiming benefits after the FRA. Since these changes have taken place only recently, there is relatively little research using household level data analyzing the consequences of all these changes. Using the Public Use Micro-Data extract from the Master Beneficiary Record we are able to uncover a number of interesting trends in benefit claiming behavior and level of benefits receipt, which can help us understand how the changes in the system are shaping the retirement benefits claiming behavior of Older Americans. We find evidence of substantial effects of the removal of the earnings test and the increase in the FRA, but evidence of very small effects as a result of the increases in the DRC.

Keywords: Retirement Benefits, Social Security Reforms, Actuarial Fairness, Self-Selection

JEL classification: J26

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Using administrative data from the Public Use Micro-Data extract from the Master Beneficiary Record, we study the trends in benefit claiming behavior and level of benefits receipt in the 1994 to 2004 period, a time of important policy changes in the United States Social Security Old Age Benefit system.

Summary

In the last few years Social Security's Old Age and Survivors Insurance (OASI) program has undergone some of the most important changes since its inception. We have seen, in a short period of time, the implementation of the phased increase in the Full Retirement Age (FRA) with the resulting increase in the penalty for claiming benefits early, the elimination of the Earnings Test (ET) for those above the FRA, and the incremental increase in the Delayed Retirement Credit (DRC) for those claiming benefits after the FRA.

The changes in the FRA, and the most recent changes in the DRC are the result of the reforms signed into law by President Reagan in 1983 following the recommendations of the National Commission on Social Security Reform chaired by Alan Greenspan, while the removal of the ET is a more recent development, introduced in the last year of Clinton's presidency, and was likely rather unexpected for the average American. There is relatively little research analyzing the consequences of all these changes, mainly because of how recent they are, but also because of the difficulty identifying the likely contribution of all these changes to variables of interest like labor supply and claiming behavior using publicly available household level data.

In this paper we use Micro Data from the Public-Use extracts from the Master Beneficiary Record to uncover a number of interesting trends in benefit claiming behavior, and especially novel trends in the level of benefits receipt. The analysis can help us understand how the changes in the system are shaping the retirement behavior of Older Americans.

Our analysis finds evidence of significant effects of the removal of the earnings test, with a large and significant short run effect of the abolition of the ET on the claiming behavior of Older Americans, and evidence of a significant and much longer lived effect on the composition of those claiming and their levels of benefits received after age 65. We also find sizable effects in

the levels of benefits received by early claimers, especially males, as a result of the increase in the FRA, but a hardly noticeable effect of the increases in the DRC. The results on claiming behavior are very similar to those discussed in recent papers by Song and Manchester (2007a, 2007b, and 2007c) using the same data but different empirical strategies. As far as we know, we are the first to analyze the trends in benefits receipt in this time period and connect them with the reforms to the system.

Our findings should encourage researchers to use the Public-Use data provided by the SSA. This data source can complement more traditional analysis using household level data, and provide useful benchmarks for researchers modeling retirement behavior using advanced econometric and computational methods of analysis.

1. Introduction

In the last few years the United States Social Security Old Age Benefit system has undergone some of the most important changes since its inception. We have seen, in a short period of time, the implementation of the phased increase in the Full Retirement Age (FRA) with the resulting increase in the penalty for claiming benefits early, the elimination of the Earnings Test (ET) for those above the FRA, and the incremental increase in the Delayed Retirement Credit (DRC) for those claiming benefits after the FRA.

The changes in the FRA, and the most recent changes in the DRC are the result of the reforms signed into law by President Reagan in 1983 following the recommendations of the National Commission on Social Security Reform chaired by Alan Greenspan, while the removal of the ET is a more recent development, introduced in the last year of Clinton's presidency, and was likely rather unexpected for the average American.[1] There is relatively little research analyzing the consequences of all these changes, mainly because of how recent they are, but also because of the difficulty identifying the likely contribution of all these changes to variables of interest like labor supply and claiming behavior using publicly available household level data.

In this paper we use Micro Data from the Public-Use extracts from the Master Beneficiary Record to uncover a number of interesting trends in benefit claiming behavior, and especially novel trends in the level of benefits receipt. The analysis can help us understand how the changes in the system are shaping the retirement behavior of Older Americans.

This data source, while highly reliable for the study of claiming behavior, have the disadvantage of not allowing us to control for the usually long list of socio-demographic and socio-economic variables, or analyze other relevant variables of interest like labor supply. This

[1] Notice, however, that with the sharply increasing earnings limit for those above the FRA starting in 1996, and the fact that the earnings test was eliminated for those age 70-71 beginning in 1990, the change came in phases, even if the final removal was a policy item the timing of which was not easy to foresee..

means that there is potentially a large amount of heterogeneity which in other studies would be observable and that remains unobservable for us. However, we find that our ability to access detailed information on claiming behavior and the level of benefits resulting from that benefit application, allows us to provide a realistic and surprisingly illuminating picture of how changes in the system are likely affecting claiming behavior, which suggest a large explanatory power intrinsic in accurately observing the self-selection into claiming, and the importance of properly understanding the complex set of incentives involved in people's decision to apply for retirement benefits at a given age.

Our analysis finds evidence of significant effects of the removal of the earnings test, with a large and significant short run effect of the abolition of the ET on the claiming behavior of Older Americans, and evidence of a significant and much longer lived effect on the composition of those claiming and their levels of benefits received after age 65. We also find sizable effects in the levels of benefits received by early claimers, especially males, as a result of the increase in the FRA, but a hardly noticeable effect of the increases in the DRC. The results on claiming behavior are very similar to those discussed in recent papers by Song and Manchester (2007a, 2007b, and 2007c) using the same data but different empirical strategies. As far as we know, we are the first to analyze the trends in benefits receipt in this time period and connect them with the reforms to the system.

It is important to highlight that the nature of the analysis we perform does not allow us to guarantee that the patterns we observe in claiming behavior and level of benefits received are solely the product of the policy changes. In terms of identification, other macro effects and also cohort effects could be driving, at least in part, the results. Given the lack of plausible reasons for the large differences over time and across cohorts that could be responsible for the particular

pattern of decisions and outcomes we observe, we believe the policy changes are the most natural and appealing explanation.[2]

Section 2 presents a discussion of the incentive structure provided by the Social Security Old Age system, and Section 3 gives information about the data set used in the analysis. Section 4 reports our main findings, and section 5 concludes.

2. Retirement Benefits: An overview

Public pensions are a major income source for older Americans, and under the Old Age and Survivor Insurance (OASI) system, the Social Security Administration paid about $509.3 billion dollars during 2008 to almost 42 million beneficiaries (Board of Trustees 2009). Given the importance of Social Security it is not surprising that the discussion over the need of reforms to the system has gone on for a long time. In fact, the 1983 Amendments were meant to solve short-term financial imbalances and the more serious long-run financial crisis that Social Security was headed for. The reforms resulting from those Amendments have started to take effect during the last few years, as the discussion on possible additional reforms continues.

Social Security provides fairly complex incentives that undoubtedly affect the labor supply and benefit claiming behavior of individuals starting at the Early Retirement Age (ERA), and continuing until age 70.[3] Retirement benefits at all ages are intimately linked to a person's earnings history, but also to a fairly large number of provisions that compute the benefits a person receives as a function of the following:[4]

[2] In fact, the analysis of claiming behavior and benefits receipt by cohorts, which due to the time span of the data can only be partially completed, provide the same qualitative results. We consider this evidence of the robustness of our results.

[3] After age 70 there is little incentive to delay claiming benefits given that the DRC provision stops at that time, and therefore any individual claiming after age 70 would receive less in present value for any life expectancy the person might have, or any length of life he or she might end up having.

[4] Our presentation here is trying to be as clear and simple as possible and not necessarily comprehensive of all the possible details and exceptions to the general rules of the system. For an encyclopedic presentation of the rules of the system we refer the reader to Myers (1993), and also to the Social Security website at www.ssa.gov.

- a person's thirty-five highest years of earnings, conditional on having at least 40 quarters of covered earnings, which loosely translates into 10 years of paid work. Any years without covered earnings go into the formula as a zero.
- indexing factors to adjust past earnings to current wage levels. These factors reflect the growth in average earnings in the economy over the years.
- a progressive formula that uses bend points (which are indexed to the growth rate in the average wage index and therefore change every year) and marginal replacement rates (which are fixed) by indexed earnings brackets to compute the Primary Insurance Amount (PIA). The latter is the level of benefits a person receives if he or she claims benefits at the FRA.
- the Actuarial Reduction Factor (ARF), which determines the reduction in benefits that individuals face if they claim benefits before attaining the FRA. This reduction factor depends on the person's FRA. For those who claimed benefits upon attaining age 62 in 2008, the FRA was 66 and the reduction factor was 0.75. The reduction factor will be 0.7 for earliest entitlement when the FRA increases to age 67 for people born in 1962 and later. Given that individuals can claim in any given month after they reach age 62, the reduction factor is 5/9 of 1 percent during the first 36 months before the FRA, and 5/12 of 1 percent for the months above 36. The benefit reduction is permanent unless benefits are reduced because of the ET. In that case, as explained below, there will be a recalculation of this factor when the person reaches the FRA.
- the DRC which determines the upward adjustment of benefits if individuals claim after the FRA. For those born in 1943 or later it is 2/3 of 1 percent for each month up to age 70. For those born before 1943 it ranges from 11/24 to 5/8 of 1 percent per month, depending

on their birth year. In fact, the 1983 amendments included among other measures, a phased increase in the Delayed Retirement Credit, with the clear objective of fostering work after the FRA. The DRC started to increase (from an initial annualized value of 3%) by half a percentage point for those attaining age 65 in 1990-91, and has increased by a half percentage point every two years, reaching 8% for the cohort that will turn 65 in 2008, level at which it will stay until a further reform considers changing it.

- the earnings levels between the time the person claims benefits and reaches the FRA, in order to apply the ET and withhold benefits if necessary. Therefore, the exempt amounts matter and they are different in the period between the ERA and the year the person reaches the FRA, and after.[5]
- the number of monthly checks withheld because of the Earnings Test. They are used once the person reaches the FRA to compute the upward adjustment to the ARF to compensate for the withheld benefits.[6]

Underlying all these factors, and especially those that require adjustments due to early or late (with respect to the FRA) claiming of benefits, is the concept of actuarial fairness. While the application of this concept faces practical difficulties given how long ago some of these adjustment factors were decided and the reasoning behind them, the idea is that an individual with a life expectancy at the average of the population should be indifferent between claiming

[5] The exempt amount for the period between the month of claiming and the year the person reaches the FRA is $13,560 in 2008, and for every dollar earned above this limit the government withholds 50 cents of benefits. A higher exempt amount, $36,120 applies in the year of attaining FRA, for months prior to such attainment. For the latter case the withholding is of 1 dollar for every 3 dollars earned above this limit.

[6] This is a very important characteristic of the Earnings Test provisions, and too often misunderstood or ignored both by researchers and experts. Benítez-Silva and Heiland (2007, and 2008) present a good discussion and analysis of this important feature. Leonesio (1990), Gustman and Steinmeier (1991), and Gruber and Orszag (2003) describe this feature but do not study it in detail. For the most recent evidence of how widely misunderstood this feature is we refer the reader to a recent article by Stan Hinden, which appears in page 23 of AARP's Bulletin in October of 2007. Most of the other research on the ET has focused on the taxation aspects, see Vroman (1985), Burtless and Moffitt (1985), Honig and Reimers (1989), Leonesio (1990), Reimers and Honig (1993 and 1996), Friedberg (1998 and 2000), Baker and Benjamin (1999), and Votruba (2003).

early at a reduced rate, and claiming at any point after that, assuming all individuals have the same subjective discount rate, or that there is a distribution of discount rates which maps the mortality probabilities in the population.[7] In budgetary terms it means that no additional cost to the system arises on account of early (or late) retirement.[8]

At the individual level, however, it should come as no surprise that empirically we will observe in our analysis that actuarial fairness, while it goes a long way in explaining disparities in benefit levels, does not perfectly account for the different claiming behavior of older Americans, even when we observe population data that allows us to use law of large numbers arguments to approximate aggregate behavior. The reason is that there are many other factors potentially affecting claiming behavior, some of them relatively well understood, others object of current and future research. In part, this paper tries to analyze how substantial deviations from those averages can be linked to claiming behavior, and the level of benefits of those claiming at different ages.

The fact that there are plenty of open questions should come as no surprise given the short time since some of these changes started to take place, and the fact that they are still happening. These complications are exemplified by the three types of policy changes we focus on in this paper, and that we explain in more detail in the remainder of this section: The changes in the FRA, which affect the reduction factors when individuals claim early; the changes in the adjustments due to late claiming of benefits; and the removal of the Earnings Test for those above the FRA. The administrative publicly available extract of the Master Beneficiary Record,

[7] If none of these assumptions are correct, it could very well be, for example, that individuals who value the future very little (very much) find the current penalties for early retirement too high (or too low). Crawford and Lilien (1981), and Gustman and Steinmeier (1991) question the actuarial fairness of the system at the individual level, even if it has some bite at the aggregate level.

[8] Queisser and Whitehouse (2006) review, with an applied approach, this and other related concepts using data from a number of OECD countries. Breyer and Hupfeld (2007) provide a more theoretical discussion to understand the redistributive effects of early retirement provisions.

can be used to characterized some of the consequences of these changes, and provide insightful discussions of how possible reforms will likely affect the claiming behavior of older Americans.

The 1983 Social Security amendments included, among other measures, the change in the FRA starting with the cohort turning 62 in the year 2000 (those born in 1938), for whom the FRA was set at 65 and 2 months. The FRA has increased by 2 months for every cohort since then until it reached 66 for those who reached age 62 in 2005, and will stay at that level for a decade. It will increase again by two months for the cohort born in 1955 (who reach age 62 in 2017, and will continue to increase by 2-month increments for successive birth cohorts until it reaches 67 for the 1960 cohort.

The changes in the FRA and the DRC were clearly easy to anticipate by those nearing retirement age, and it is natural to expect comparatively less pronounced changes in behavior resulting from their phased implementation.[9] More unexpected was the repeal of the Earnings Test for individuals above the FRA, which withholds benefits for individuals earning above the exempt amounts. The legislation was passed in the spring of 2000, around a year after it was made a policy objective by President Clinton in early 1999, and affected earnings obtained starting January 1, 2000. The literature analyzing the effects of the earnings test is also quite large, and has focused primarily on understanding whether people respond to the exempt amount.[10] Given the data we are analyzing, we are in a position to infer possible changes in behavior due to the repeal of the ET, which would otherwise be hard to characterize with any household level data.

3. Data

[9] See Gustman and Steinmeier (1985) for an early discussion of the possible consequences of the 1983 reforms.
[10] Only recently (Benítez-Silva and Heiland 2007 and 2008) have researchers emphasized the nearly actuarial fairness of the ET, and have connected its fairly complex incentives with the early claiming behavior of older Americans.

We use the 2004 publicly available release of the OASDI Public-Use Microdata Files, to analyze the trends in claiming behavior and level of benefits received in the 1994 to 2004 period.[11] The 2004 Benefits and Earnings Public-Use File is a one-percent random sample of OASDI beneficiaries who were on the Social Security records in December 2004. It contains 473,366 records as of December 2004, and includes information in sixteen fields on OASDI beneficiaries' characteristics, mainly about benefits entitlements. This more detailed information allows us to focus only on retired workers who claimed on their own earnings history, and since it is individual level we can compute standard deviations and therefore statistically compare benefit levels across ages and years. This micro data has, however, two weaknesses. First, we have not been able to separate disability conversions from new entitlements for those claiming at age 65 or the FRA, if higher, a distinction that the Public-Use file does not allow us to identify.[12] What we have done to overcome this problem is to assume a proportion of Social Security claimants from age-65 samples each year as disability conversions. The proportions used are calculated according to the Annual Statistical Supplemental. Second, since we are restricting attention to individuals in the Master Beneficiary Record as of December of 2004. The latter likely results in a selection bias when looking at historical data on individuals that claim in the decade before that. The reason is that some individuals who claim in the 1990s, or even more

[11] An alternative data source is the aggregate historical data from the Annual Statistical Supplement to the Social Security Bulletin, reported in Table 6.A4 of the 2008 edition, and in similar tables in the historical editions of the document. In previous versions of this paper we also use this additional source of data and compared it with the Public-Use Micro Data we use here. The conclusions are similar, but provide an interesting comparison between an analysis using aggregate data and individual level data. The aggregate data has some weaknesses, for example, the information for retired workers and dependents is not presented separately, and it is essentially impossible to make any statistical argument about the differences in benefits levels since we only have information about the mean of the distribution of benefits by age, but not about the standard deviation, preventing us from utilizing the data to make any inference about the statistical differences.

[12] While the Master Beneficiary Record has variables which probably allow for this distinction, the Public-Use files do not.

recently, might not be in the sample if they have died in the time since their application for benefits.[13]

4. Claiming Behavior and Retirement Benefits

From the Public-Use data extracts from the Master Beneficiary Record we notice the well known retirement peaks at age 62 and 65, both thinking in terms of proportions of claimers in a given calendar year or as proportions by cohort over different years.[14] It is interesting to highlight, however, that the relative sizes of these peaks, as proportions by calendar year, have changed considerably from previous decades, where the largest peak was at age 65 in the 1970s, or were roughly of similar size during part of the 1980s. In the period we are analyzing we see that the proportion of individuals claiming at age 62 has remained quite stable in most years (in the 48% to 52% range) with the proportion of individuals claiming before the FRA at almost 64% by 2004. This is a key development of the last two decades, and one that has puzzled economists considerably.[15] On the other hand, the proportion of individuals claiming at age 65 has remained around 20%.

[13] This selection bias is not present in the aggregate data using the Supplement since it reports yearly, not retrospective, data. It is natural to expect an upward bias in the retrospective adjusted benefits levels in the micro data, and this is what we conclude from comparing that data to the Supplement. These results are available upon request.

[14] Notice that all our empirical analysis takes the calendar year perspective, and not a birth cohort perspective. The main reason is a serious right censoring problem due to the time span of the data, which prevents us from following into older ages a large number of individuals in younger cohorts. In spite of this problem, following the recommendations by two referees and the editor, we have constructed our main tables of interest by cohort, and the results do not change appreciably. In particular, as in the by-year data, we can observe the drop in the proportion of individuals claiming benefits for the 1938 cohort, and the decline in benefit receipt once the members of the cohort can claim after the year 2000. These results are available from the authors upon request. Recent work by Muldoon and Kopcke (2008) taking the cohort perspective also do not find major differences in terms of claiming behavior.

[15] Queisser and Whitehouse (2006) using 2002 mortality data, find that the US reduction for early retirement is not actuarially fair (it is too low), and too generous given current mortality figures, which results in a subsidy of early retirement and a penalization of late retirement. This can in part explain the preference for early retirement expressed by Americans in the last decades, and also some of our results on benefits levels, since higher income individuals, likely to live longer, are the ones benefiting the most from this low reduction. The authors also find, based on the same mortality data, that the Delayed Retirement Credit is nearly actuarially fair.

Until recently a number of researchers have tried to explain this with arguments regarding individuals preferences (Coile et al. 2002, and Gustman and Steinmeier 2002), suggesting that there is a proportion of individuals who seem to be rather myopic and do not quite behave as forward looking optimizers. Other authors have recently shown that once the full incentive structure of the system is properly modeled (mainly regarding the Earnings Test provisions) these proportions are much more consistent with the predictions of a fully dynamic inter-temporal model of behavior than previously thought (Benítez-Silva and Heiland 2007).[16]

Evidence on Claiming Behavior

Table 1 shows the proportion of individuals claiming Social Security Retirement benefits by age for the 1994 to 2004 period, as well as the total number of individuals that claimed in a given year. The total number of claimants that we use in order to compute the proportions does not include the disability conversions at age 65 (or the FRA if higher), but does include the relatively small number of individuals who claim at age 70 or above, for whom for simplicity we do not include proportions in the table.[17]

From the table, and Figure 1 which portrays in graphical form the information in the table, the most striking percentages are those referring to the year 2000. The proportions of individuals

[16] Rust and Phelan (1997) show quite convincingly that the proportion of individuals claiming at age 62 could be explained through explicitly modeling that some individuals are liquidity constraint. However, they were using data from the 1970s with a much lower claiming peak at age 62, and they restricted attention to individuals for whom Social Security was essentially their only source of income in retirement. Peracchi and Welch (1994) cast some doubt over this explanation, unless it is possible to provide a justification for why the proportion of liquidity constraint Americans would shift so much over time. This point is especially important given the large age 62 peak we have discussed, pointing in the direction of alternative explanations for the current developments in claiming behavior. Recently, the large current peak at 62 has been replicated if beliefs regarding the future ability of the system to pay benefits are accounted for (Benítez-Silva et al. 2009). While it is widely stated that any reforms of the system will not affect those close to retirement age, it is also clearly stated by Social Security in their communication to future beneficiaries that some reforms will be necessary to maintain the sustainability of the system, and that they are likely to result in lower benefits. In a recent New York Times article, May 12 2007, Laurence J. Kotlikoff argues in favor of late claiming of benefits by those that hold relatively large private pension assets. This is also defended by the same researcher along with others in a recent U.S. News and World Report article, February 11, 2008.

[17] Notice (and this is true in all the tables that follow), that a given individual only appears in one of the cells identified by age and year, and that corresponds to the first time they apply for benefits.

claiming at different ages changed dramatically that year, with a large drop in the proportion claiming at age 62 (from 50% to around 45%), and a sharp increase in those claiming at age 65 and above. This year was the one that started to implement the increase in the FRA and continue to implement the increases in the DRC, but also the year in which the Earnings Test was repealed. While the increase in the FRA is unlikely to have much of an effect in this case, given that it only affected those turning 62 in the year 2000 who faced an increase in the FRA of only 2 months, an explanation linked to the elimination of the ET seems much more reasonable. In fact, while the proportions changed considerably, the fact is that the number of individuals claiming by age, shown in Table 2, did not change much, except for those at age 65 (by around 200,000 people if we look at the aggregate data in the Statistical Supplement, compared with the previous periods for this age in that year, which explains the large jump in the total number of claimants that we show in Table 1) to 69. These increases are larger than those described in Song (2004), but more in line with those described in Song and Manchester (2007a, and 2007c), and suggest that individuals reacted to the elimination of the ET quite sharply, and in accordance with a policy that eliminates any link between claiming benefits and labor earnings. These results are very much in line with those recently reported in Song and Manchester (2007b), who using the same data focus on the claiming behavior of individuals after the elimination of the earnings test for those above the FRA.[18] In the years since that change, the proportions of individuals claiming at age 62 has come back up even as the penalty for claiming early has become higher, while the proportion claiming at age 65 has stayed at higher levels. In the meantime the proportions of those claiming after age 65 has come back to pre-2000 levels and even gone lower, suggesting a

[18] In principle, we cannot rule out possible period effects resulting from at least two aspects; First, the focal point of the year 2000 as the arrival of the new Millennium could have lead some individuals to postpone their retirement (claiming of benefits) until this milestone date. Second, the new decade came with the burst of the technology bubble and a slowdown in job growth after the robust growth of the late 1990s, this change in trend could have made some individuals consider claiming retirement as their expectations of future income growth became less optimistic.

very small effect of the increases in the DRC on claiming behavior.[19] This latter result is in part surprising given the substantial increases in the DRC in the last years, and its level, suggesting that alternative policies are necessary to convince individuals to claim later and likely stay in the labor force longer. One possible reasonable explanation is that the likely effects of the increases in the DRC have been offset by the elimination of the Earnings Tests, since these two policies seem to have affected claiming behavior in opposite directions around the FRA.

One number clearly stands out in Table 1, and it is the large increase in the proportion (and number in Table 2) of individuals claiming benefits at age 66 in 2004 (in bold). The percentage claiming at age 66 goes up from 1.1% to 7.1% in a single year (As shown below, for both men and women the proportion of individuals suddenly claiming at age 66 increases by several percentage points from a very low level, from 1% to 7.6% (men) and from 1.3% to 6.5% (women) while the aggregate data shows no such trend in the 2003-2004 period. The reason for this is that the micro data report differently from the Supplement the claiming of benefits at the FRA of 65 and 2 months for the cohort who turned 66 in the year 2004. In the Supplement those claiming at age 65 and 2 months appear as claiming at age 65, while in the micro data they appear as claiming at age 66. This also explains the increasing percentage claiming at age 65 during 2004 reported in the Supplement, but the declining percentage claiming at the same age in the micro data. The advantage of the micro data is that they show something that is well known, but elusive in this period of changing FRA: a non-trivial number of individuals claim benefits exactly when they turn FRA.[20] Song and Manchester (2007b) present striking additional evidence to that effect.

Evidence on Level of Benefits Receipt

[19] See also Gustman and Steinmeier (2004), Song (2004), and French (2005), for discussions of the likely consequences of the removal of the ET.
[20] We thank an anonymous referee for making this point to us.

Table 4 presents the level of average monthly benefits adjusted for the adjustment factors which have changed considerably in the period of analysis resulting from the policy changes we have discussed. The evolution of these factors is presented in Table 3, and then used to obtain the ARF-DRC adjusted or actuarially adjusted (and inflation adjusted by the Consumer Price Index, such that the benefits levels are all reported in dollars of 2005) level of benefits in the rest of benefits tables discussed below.[21] These adjustments are necessary such that benefits can now be compared, with the theory in mind that in the absence of self-selection (which embeds individual heterogeneity, which includes for example differential mortality expectations, health status, and earnings histories) the prediction would be that the benefit levels would not change by age, and would only change by column due to time and cohort effects, where the former includes policy changes and macroeconomic effects.[22]

In Table 4 we are essentially backing out the average PIA by age and year for those applying in this period. Our calculation is likely to differ from the actual PIAs for two reasons. First, in our calculations it is assumed that individuals claim exactly on their birthdays (or in the month they reach the FRA for claimers who are 65 in 2003 or later), which means that for those claiming in the months in between birthdays our calculation will use an actuarial reduction factor that is too small, which will result in an adjusted benefit that is higher than the PIA. Second, the benefit level reported is taking into account the effect of the Earnings Test, but since the earnings test is approximately actuarially fair, our adjustment delivers an approximation that is too low

[21] To truly compare these benefits levels we have to take into account the adjustments to their PIA such that the dollar amounts by column and rows are in the same actuarial units. The idea is that while a person who claims at age 62 will mechanically have a lower monthly benefit than a person who claims at age 65 but has the same earnings history, the early claimer receives three more years of benefits, and therefore in present value at the actuarial adjustment factor, and assuming that they will live to the same age, their benefit level is actuarially equivalent.

[22] This means that if individuals were randomly assigned to claiming at a given age between say age 62 and age 70, and without the existence of any policy changes in this period, the benefit levels (on average) in a given year for the different ages should be identical, and the differences over time could only be explained by time effects (macro effects but not related to Social Security reforms) or cohort effects.

compared with the true PIA. Since these effects go in different directions, it is an empirical question whether our approximation of the PIA is upwards or downwards biased. We have also used the PIA reported in the Public-Use Micro Data extract to perform the same analysis we present below and the results are essentially unchanged as can be clearly seen from Tables A1 and A2 in the Appendix.[23] The advantage of what we report here is that it can be compared by researchers with aggregate data from the Supplement which is easily and readily accessible to researchers but does not provide the PIA.

From Table 4 it should be clear that accounting for the actuarially fair nature of the ARF and the DRC is important, and we see that although the numbers in the table are hardly the same by columns or by rows, they are mostly of the same order of magnitude, suggesting the considerable explanatory power of self-selection, and likely put to rest any notion that early retirees are comparatively (and on average) much worse off than those claiming later in terms of benefits received from the Social Security Administration. Notice, however, that there is obviously a distribution of monthly benefits underlying these numbers which might still have a significant proportion of individuals with very low level of benefits. Notice, however, that the standard deviations (not shown in the tables) for those claiming early are actually smaller than the standard deviations of those claiming at later ages, suggesting that the dispersion is not particularly different for early claimers. An additional exploration of the data shows that the 25% percentile of the monthly benefits level is around $612 for those claiming before age 65, while $782 for those claiming at age 65 or later.

[23] These tables show the actual PIAs for the same group of individuals as Table 4, and therefore both set of numbers can be directly compared. It is clear that our approximation is quite close to the PIA of record, and the differences can be traced back, as explained above, to the timing of claiming we have assumed and the role of the earnings test. Notice, that the main results of our analysis are essentially unchanged.

A number of researchers have described early retirees as comparatively similar to those who claim later (Burkhauser, Couch, and Phillips 1996, Smith 1999, Leonesio, Vaughan, and Wixon 2000, and Mitchell and Phillips 2000) but not in terms of the level of benefits they receive.[24] A possible explanation behind the notion (described as *conventional wisdom* by Burkhauser et al. (1996)) that early retirees where disproportionally at risk is that it was developed in a period of time in which claiming early was relatively less common. With 73.2% of Americans currently claiming before the FRA (OASDI Monthly Statistics, percentage as of November 2007) it is hardly surprising that the range of characteristics of these retirees covers the spectrum of the population. In summary, while we still have to "beware of the mean" as stated by Quinn (1987) in his analysis of the economic status of the elderly, this summary statistic might now be less problematic than it was a couple of decades ago.[25]

The most relevant result coming out of this table, which becomes even clearer from Figure 2, is also the main result and contribution of this paper, and is that the level of benefits received by those claiming benefits after age 65 (shaded cells) decreased sharply after the year 2000, and during the following years become increasingly different from the benefits received by those 62 to 65. The difference from the pre-2000 period, when benefits levels at all ages tend to be within $100 of one another, is striking.

Those 62 to 65 have seen an upward trend in their benefits levels possibly resulting from the increase in the FRA. We can theorize that the increase in the penalty for claiming early can have two related effects. On the one hand, one effect (which we could call a scale or wealth

[24] More recently Haveman, Holden, Wolfe, and Sherlund (2006) analyze whether early retirees will be able to maintain well being during retirement. Given the data they use, little is discussed regarding level of benefits, and they do not compare early claimers with those that delay claiming benefits.

[25] It is still true, however, that especially for long-lived early retirees, and their survivors, and low-income early retirees, the reduction can have real welfare consequences, even if for the average individual they are not of first order importance.

effect) should make everyone potentially interested in claiming later due to the fact that to reach the previous level of benefits the claiming needs to be delayed. On the other hand, it is possible that the change could affect lower career earners more, for whom the new adjusted benefits would fall short of what they consider adequate to make ends meet. The latter would suggest that some of those individuals would choose to delay claiming slightly, leaving a higher proportion of higher earners among those claiming earlier. As we will see later this interesting result is mainly driven by male workers.

With the elimination of the Earnings Test it seems that the composition in terms of earnings histories of those claiming after age 65 has changed considerably and now is composed in a higher proportion of individuals trying to catch up after having had sketchy careers or relatively low earnings histories, while before the year 2000 there were more high earners maybe focused on the short term consequences of the ET provisions.[26] Using data on total Social Security credits we can analyze whether reaching fully insured status could be playing an important role among late claimers. We observe that there is a higher percentage of individuals around the 40 total credits necessary to be insured among those claiming after 65 (otherwise the distributions are quite similar), but due to the nature of the data we cannot observe the dynamics of how these credits were acquired, therefore we cannot present definitive evidence that individuals are working longer after age 65 such that they can achieve insured status. There is evidence that those claiming later have comparatively lower total credits, with the 10th percentile at 43 credits

[26] The fact that the proportion of individuals claiming benefits changed considerably in the year that the ET was eliminated for those above the FRA, and that the composition of claimers in the post-2000 period seemed to have significantly changed for those claiming after age 65, is however a bit puzzling in light of the discussion of Benítez-Silva and Heiland (2008), where they clearly show that the real incentives of the ET are very close to actuarially fair given the adjustment of benefits at the FRA if benefits were withheld. These large shifts suggest, as discussed by Benítez-Silva and Heiland (2007), a likely lack of knowledge about this important aspect of the ET provision. Those authors estimate that only around 40% of individuals are aware of this aspect of the rules that govern the ET. In recent work using telephone surveys on individuals' knowledge of the Social Security retirement system Benítez-Silva, Demiralp, and Liu (2009) show that a majority of Americans do not seem to be aware of even some of the basic features of the system.

for those claiming after age 65, and at 61 credits for those claiming at age 65. Therefore, it is plausible to believe that many of those claiming later could benefit from the extra years of work since they have a bit shorter employment histories.[27]

It would be ideal to additionally explore these conjectures regarding the composition of claimers using wage histories, however, this information is not available in the Public-Use Micro Data. We hope that in future releases of this data some additional variables are available, and some of these issues can be studied in more detail.

Finally, notice the sharp upward trend of the benefits received by those age 65, but also for those older than 65 in the last couple of years, especially for males, providing some evidence of convergence towards the pre-2000 benefits levels. This could suggest the possibility that the increases in the DRC are finally playing a role among some workers with higher earnings histories, likely correlated to longer life expectancies who can benefit the most from the permanent increases in their benefits if they claim later.

A clear advantage of using micro data is that we can now compute test statistics for the statistical significance of these average benefits with respect to the level of those that claim, for example, at age 65 back in 1994, who at that time received 100% of their PIA at this age. Table 5A reports the t-statistics for the test of equality of means between the benefits received by those claiming at age 65 in 1994 and all the other ages and time periods. Notice that in most cases even if the levels seem rather close they are significantly different from those received by the age 65 claimers of 1994. In the table we can also see that the major change in the post-2000 period in the level of benefits received by those claiming after age 65 is highly significant. Furthermore,

[27] This group can also potentially include individuals who do not need the benefit yet for a variety of reasons (access to private pensions or other sources of income) and consider the DRC a fair rate of return. Notice that additional work can lead to a recomputation of benefits, which can only benefit individuals regardless of their economic circumstances.

the level of benefits goes from being in a number of cases not significantly different from the 1994 number in the pre-2000 period, to significantly higher in the year 2000, to significantly lower in the 2001 to 2004 period. This provides even clearer evidence of the changes resulting from the abolition of the ET, even in the presence of more generous DRC.

Table 5B provides a slightly different presentation of the test of statistical significance of differences in means. In this case instead of using the level of benefits of those that claim at age 65 in 1994, we use the age specific benefits levels as of 1994 to capture the variation over time and by age in the level of benefits. The results are even more striking and show a clear divergence in the benefit levels over time for those between age 62 and 65 and those 66+. While for the former group the level of benefits are on the rise with increasingly statistically significant results, for late claimers is quite the opposite, and they are receiving much lower benefits over time. The breaking point is the year 2000, suggesting in even more striking fashion the likely effect of the removal of the ET in the composition of those claiming after age 65, and the effect of the increase in the FRA in the composition of those claiming early.

Gender Comparisons

Tables 6 to 11 break down the claiming information by gender, providing a sample of what can be gained by controlling for some of the heterogeneity implicit in the previous tables.[28] In Tables 6 and 7, we present the proportion of individuals claiming benefits by age for males and females, respectively. We can observe that females claim at lower ages than males, with a larger proportion of them claiming at age 62, and a smaller proportion claiming at age 65. This is probably in part due to a combination of the complementarity of leisure for husbands and wives, coupled with the fact that men are, on average, a few years older than their wives (See Blau (1997 and 1998), Blundell et al. (2001) and Benítez-Silva and Dwyer (2006)). We can also see

[28] Unfortunately, the Public-Use Microdata file does not provide any additional characteristics of individuals.

that the large shift in proportions in the year 2000 was much more pronounced for males, but in both cases the proportions seem to have reverted to pre-2000 figures by 2004, with the additional effect that the proportions of those claiming after age 65 have shrank for both sub-samples. The exception to the latter statement happens in the year 2004 (and will possibly continue into the future), and as we have explained for Table 1 this is due to the way (assigning them to age 66) the micro data records claimers that file for benefits exactly when they reach the (now higher) FRA.

Tables 8 and 9 provide the retirement benefits actuarially and inflation adjusted mean levels for male and female workers, which we also portray in Figures 3 and 4. Notice the large difference in benefits levels, with males receiving at most ages and in most years much higher benefits than females, and with a much higher variance across ages. This comes as no surprise given what we know about the labor force participation and earnings of these groups during the last decades, but it is still worth noticing. Again, we can also see especially for males in Figure 3, the changing composition of claimers after age 65, and more clearly after the FRA, which should be considered to be 66 for the purposes of this table starting in 2004. The break in the post 65 series in the year 2000 is striking. We also observe in the Figures the trend towards some convergence to pre-2000 levels of benefits, again especially for males.

The statistical significance of the differences by gender are explored in Tables 10 and 11, and that analysis shows that for males the changes in the benefits levels for those claiming after age 65 have been especially sharp in the post-2000 period, the much lower benefits since the elimination of the ET contrast with many years in which the benefits levels for those claiming at age 66 to 69 were not statistically significantly different from the benefits of those claiming at age 65 in 1994. One final important result is the significantly higher benefits level among males

claiming at age 62 (and also 63 to 65) starting in 1999, compared with those claiming at age 65 in 1994, likely resulting from the composition of those claiming early after the implementation of the increases in the FRA. This effect seems to be much smaller for women.

5. Conclusions

In this paper we have used micro data from the OASDI Public-Use Micro data extract of 2004 to analyze the effects on retirement claiming behavior and level of benefits receipt of a number of changes to the Social Security system implemented in the last few years. These changes include the increase in the Normal Retirement Age, the increase in the Delayed Retirement Credit, and the abolition of the Earnings Test for those above the FRA.

We find evidence of a large and significant short run effect of the abolition of the ET on the claiming behavior of Older Americans, and also evidence of a significant, and much longer lived effect on the composition of those claiming benefits after age 65 in the post-2000 period, with much lower average benefits for late claimers compared with those claiming at other ages. Both effects are stronger for males than for females. We also find evidence of significant effects resulting from the changes in the FRA, leading to an increase in the benefits levels among early retirees, coupled with a fairly large proportion of individuals that still wait to exactly reach the FRA to file, which likely predicts a sizable shift of the traditional age 65 retirement claiming peak towards 66 (and eventually even 67) in the next years. Additionally, we find evidence that the effects of the increases in the DRC seem to be very small.

Key to our analysis are the concepts of actuarial fairness and self-selection, which allow us to overcome, to a high degree, the impossibility to control for observed individual heterogeneity, as it is usually done in most micro level analysis of retirement. The fact that individuals self-select themselves into claiming at different ages, given the well known

adjustments to their lifetime benefits if they choose to claim at an age that is not the FRA, allows us to extract considerable information from the data sources we use, and provide a surprisingly sharp picture of the likely effects of policy changes, effects that have been hard to pinpoint by researchers using household level data. While it would be ideal to be able to control for a much larger array of observables in order to explain the changes we see in the data, we believe that even if we were able to do just that our main results would not change in a significant way.

Our analysis is not able to illuminate one key aspect intimately linked with claiming behavior and benefit levels, and that is labor supply. While some recent data suggest an increase in the labor force participation among Older Americans, to disentangle the sources of these changes will likely require fairly sophisticated models of behavior, using household level data matched to administrative records. Those models should be able to match the patterns of claiming behavior and benefits levels we have described in this analysis.

Our findings should encourage researchers to use the Public-Use data provided by the SSA. This data source can complement more traditional analysis using household level data, and provide useful benchmarks for researchers modeling retirement behavior using advanced econometric and computational methods of analysis.

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OASDI Public-Use Microdata File 2004

Table 1: Proportions of New Social Security claimants. Retired workers only (Without disability converters at age 65)

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	0.523	0.512	0.511	0.518	0.518	0.503	0.452	0.490	0.483	0.487	0.496
Age 63	0.161	0.166	0.143	0.151	0.152	0.147	0.136	0.157	0.156	0.145	0.143
Age 64	0.074	0.069	0.064	0.063	0.068	0.067	0.060	0.069	0.070	0.069	0.067
Age 65	0.184	0.196	0.176	0.186	0.186	0.196	0.228	0.241	0.247	0.254	0.201
Age 66	0.018	0.020	0.023	0.021	0.021	0.027	0.043	0.009	0.011	0.011	**0.071**
Age 67	0.010	0.010	0.014	0.013	0.013	0.017	0.027	0.006	0.005	0.006	0.004
Age 68	0.008	0.007	0.009	0.009	0.009	0.011	0.018	0.005	0.004	0.005	0.004
Age 69	0.006	0.006	0.009	0.007	0.008	0.008	0.012	0.005	0.005	0.004	0.002
Total	10,700	11,026	11,676	11,619	12,055	13,048	14,976	13,606	13,708	14,098	14,852

Note: In the data, there is no way to separate disability converters from OA claimants at age 65. What we have done is to assume a proportion of SS claimants from age-65 samples each year as disability converters. The proportions used are calculated according to the Annual Statistical Supplemental.

Table 2: Number of new claimants, retired workers only (Without disability converters at age 65)

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	5,592	5,641	5,967	6,022	6,245	6,565	6,767	6,671	6,627	6,861	7,372
Age 63	1,726	1,829	1,668	1,749	1,831	1,921	2,034	2,141	2,132	2,047	2,121
Age 64	796	762	748	733	815	877	894	933	961	971	988
Age 65	1,973	2,156	2,054	2,164	2,246	2,556	3,411	3,280	3,392	3,581	2,985
Age 66	197	220	263	246	254	358	638	117	153	162	1,052
Age 67	105	108	159	146	160	217	399	86	70	89	66
Age 68	81	73	103	99	104	142	264	67	57	71	57
Age 69	68	64	102	84	99	106	187	69	71	63	36
Total	10,700	11,026	11,676	11,619	12,055	13,048	14,976	13,606	13,708	14,098	14,852

Table 3: The ARF and the DRC of retirement benefits.

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Age 62	0.800	0.800	0.800	0.800	0.800	0.800	0.792	0.783	0.775	0.767	0.758	0.750	0.750
Age 63	0.867	0.867	0.867	0.867	0.867	0.867	0.867	0.856	0.844	0.833	0.822	0.811	0.800
Age 64	0.933	0.933	0.933	0.933	0.933	0.933	0.933	0.933	0.922	0.911	0.900	0.889	0.877
Age 65	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.989	0.978	0.967	0.955
Age 66	1.040	1.045	1.045	1.050	1.050	1.055	1.055	1.060	1.060	1.065	1.054	1.0466	1.035
Age 67	1.080	1.080	1.090	1.090	1.100	1.100	1.110	1.110	1.120	1.120	1.130	1.119	1.116
Age 68	1.105	1.120	1.120	1.135	1.135	1.150	1.150	1.165	1.165	1.180	1.180	1.195	1.184
Age 69	1.140	1.140	1.160	1.160	1.180	1.180	1.200	1.200	1.220	1.220	1.240	1.240	1.260

Table 4: Average monthly benefits in dollars of 2005. *Adjusted by the ARF and the DRC*. Retired workers only.

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	1,065.91	1,039.24	1,041.99	1,050.28	1,061.61	1,112.96	1,110.40	1,137.49	1,172.71	1,181.27	1,134.81
Age 63	1,041.79	1,070.49	1,045.26	1,043.64	1,058.63	1,057.92	1,105.28	1,104.24	1,123.12	1,157.47	1,110.99
Age 64	1,089.06	1,088.86	1,095.24	1,060.10	1,056.50	1,089.29	1,101.26	1,162.92	1,186.47	1,185.22	1,182.06
Age 65	1,138.35	1,129.55	1,128.78	1,134.92	1,103.10	1,103.48	1,123.02	1,150.72	1,194.23	1,210.43	1,172.53
Age 66	1,190.88	1,080.07	1,137.30	1,090.37	1,146.25	1,161.20	1,224.59	891.68	862.49	977.08	1,134.78
Age 67	1,071.46	1,083.73	1,113.53	1,068.67	1,028.65	1,149.16	1,248.28	833.95	878.65	848.13	907.75
Age 68	1,030.63	966.00	1,009.15	1,000.26	1,002.91	1,089.51	1,213.70	847.24	748.87	730.58	774.61
Age 69	1,173.50	1,171.31	1,012.89	997.81	998.48	1,088.88	1,149.75	873.58	840.28	694.77	838.93

Table 5A: t-statistics of Social Security monthly benefits. Benefits of those Age 65 in 1994 used as comparison

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	-13.4805	-18.8968	-19.0375	-17.0784	-14.8081	-4.7205	-5.1620	-0.1537	5.7532	7.3185	-0.6521
Age 63	-10.7386	-7.5375	-10.1821	-10.6993	-8.8523	-8.7318	-3.5480	-3.6254	-1.5533	1.8736	-2.7303
Age 64	-3.5988	-3.5065	-2.9701	-5.2823	-5.9061	-3.5680	-2.6853	1.7147	3.3087	3.0444	2.8563
Age 65		-1.0169	-1.0494	-0.3811	-4.1109	-4.4248	-2.2722	1.7050	7.3361	9.1248	3.9703
Age 66	1.6634	-1.8287	-0.0406	-1.5536	0.2626	0.8813	4.7070	-5.1937	-6.8857	-3.8777	-0.2644
Age 67	-1.4849	-1.1258	-0.6589	-1.6699	-2.8487	0.3316	4.5750	-6.4220	-4.4015	-5.3363	-3.7827
Age 68	-1.7849	-2.6873	-2.6178	-2.9188	-2.7914	-1.1290	2.3995	-5.0251	-7.3427	-7.5304	-6.9266
Age 69	0.6060	0.5722	-2.7263	-2.5275	-2.8545	-1.0505	0.3075	-5.0385	-5.5857	-8.7639	-5.0799

The shaded cells represent significance at the 5% level or better.

Table 5B: t-statistics of Social Security monthly benefits. The 1994 benefits levels used as comparison

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62		-5.0854	-4.7262	-3.0317	-0.8293	8.7489	8.2168	12.7966	17.8826	19.6706	12.6929
Age 63		3.1878	0.3795	0.2090	1.8700	1.7511	6.8118	6.6375	8.2948	11.3359	6.9055
Age 64		-0.0142	0.4258	-1.9550	-2.3494	0.0167	0.8833	5.1546	6.6978	6.2461	6.0776
Age 65		-1.0169	-1.0494	-0.3811	-4.1109	-4.4248	-2.2722	1.7050	7.3361	9.1248	3.9703
Age 66		-3.4769	-2.0748	-3.2545	-1.4839	-1.1444	1.8398	-6.2997	-8.1969	-5.1407	-4.1568
Age 67		0.2529	1.1169	-0.0669	-1.1116	2.3824	7.3587	-5.0108	-3.2678	-4.1064	-2.6854
Age 68		-1.0077	-0.4352	-0.6420	-0.5713	1.3613	5.8301	-3.1657	-5.3119	-5.5411	-4.8753
Age 69		-0.0380	-3.4901	-3.1597	-3.5718	-1.7969	-0.6406	-5.7073	-6.2444	-9.4584	-5.6763

The shaded cells represent significance at the 5% level or better. Color used to emphasize the difference by age groups.

Figure 1: Proportion of New Social Security Retirement Claimants: 1994-2004 (Table 1)

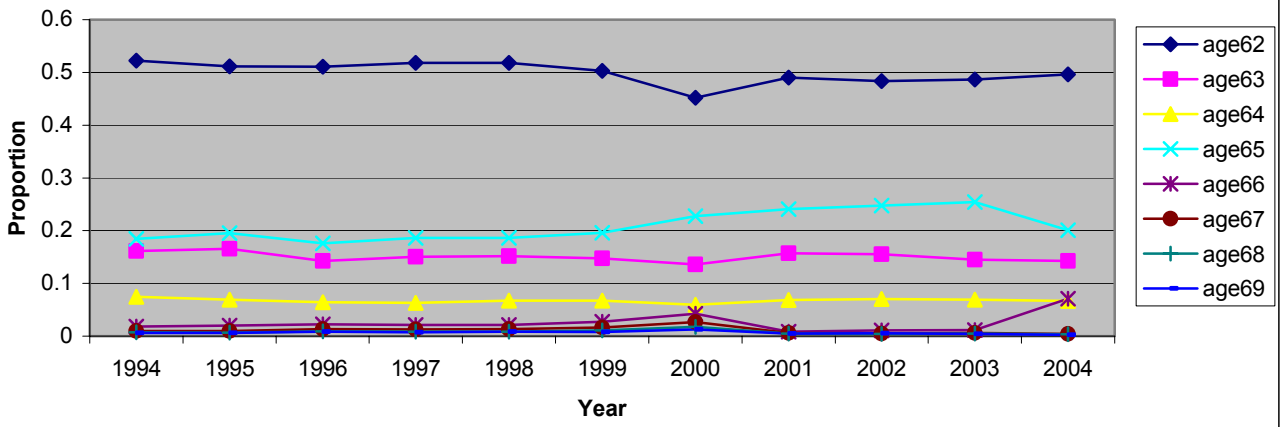


Figure 2: Average monthly retirement benefits: 1994-2004 (Table 4)

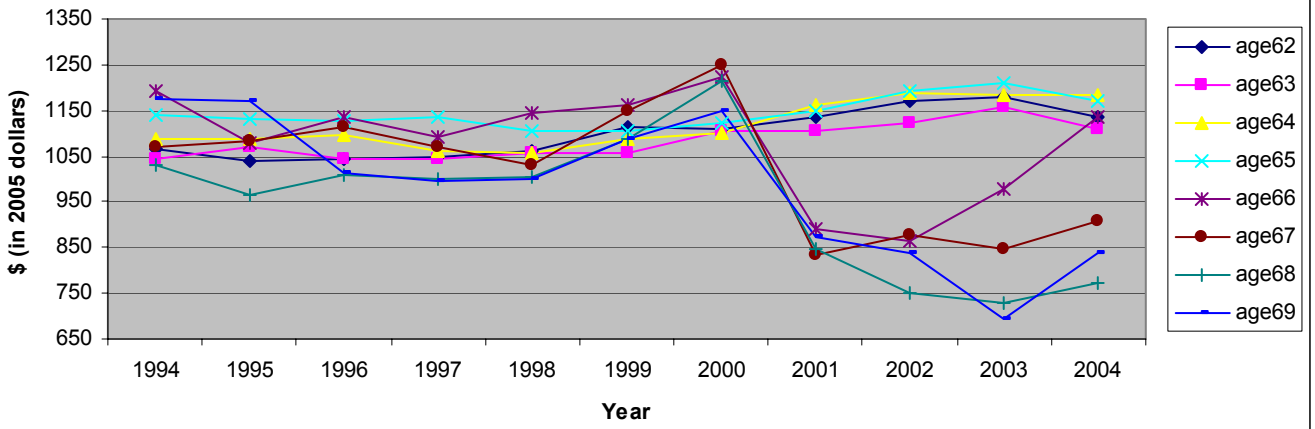


Table 6: New Male claimants, proportions, 1994-2004 (w/o DI conversions)

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	0.489	0.480	0.509	0.500	0.491	0.473	0.414	0.453	0.460	0.465	0.478
Age 63	0.162	0.170	0.150	0.158	0.163	0.152	0.137	0.163	0.160	0.148	0.142
Age 64	0.081	0.072	0.072	0.066	0.071	0.072	0.061	0.075	0.073	0.073	0.072
Age 65	0.207	0.215	0.201	0.208	0.207	0.212	0.248	0.273	0.275	0.282	0.219
Age 66	0.022	0.024	0.025	0.025	0.024	0.033	0.054	0.009	0.010	0.010	0.076
Age 67	0.008	0.010	0.013	0.015	0.013	0.018	0.031	0.007	0.005	0.006	0.004
Age 68	0.008	0.008	0.009	0.008	0.007	0.012	0.021	0.004	0.003	0.005	0.002
Age 69	0.007	0.004	0.007	0.006	0.007	0.009	0.013	0.004	0.004	0.003	0.001
# of Claimants	5,766	5,911	6,001	6,073	6,344	6,970	8,169	7,195	7,266	7,404	7,794

Table 7: New Female claimants, proportions, 1994-2004 (w/o DI conversions)

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	0.562	0.548	0.513	0.538	0.548	0.537	0.497	0.532	0.510	0.510	0.517
Age 63	0.160	0.161	0.135	0.143	0.140	0.142	0.134	0.151	0.151	0.142	0.144
Age 64	0.066	0.065	0.055	0.060	0.064	0.062	0.058	0.061	0.066	0.064	0.061
Age 65	0.158	0.173	0.149	0.162	0.163	0.178	0.203	0.205	0.216	0.223	0.181
Age 66	0.015	0.015	0.020	0.017	0.018	0.021	0.029	0.008	0.012	0.013	0.065
Age 67	0.012	0.010	0.014	0.010	0.014	0.015	0.022	0.006	0.005	0.007	0.005
Age 68	0.007	0.005	0.009	0.009	0.010	0.009	0.014	0.006	0.006	0.005	0.005
Age 69	0.005	0.007	0.011	0.009	0.009	0.007	0.012	0.007	0.000	0.000	0.004
# of Claimants	4,934	5,115	5,675	5,545	5,711	6,079	6,806	6,410	6,442	6,695	7,057

Table 8: Average monthly benefits of Male retired workers in dollars of 2005. *Adjusted by the ARF and the DRC*

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	1,203.60	1,176.75	1,179.96	1,208.52	1,233.06	1,302.46	1,315.69	1,352.61	1,402.60	1,414.35	1,356.50
Age 63	1,161.82	1,201.06	1,178.75	1,178.69	1,199.40	1,205.90	1,275.80	1,264.56	1,310.93	1,355.05	1,317.45
Age 64	1,209.15	1,212.80	1,227.03	1,206.12	1,209.64	1,223.97	1,240.47	1,322.56	1,344.97	1,359.56	1,354.08
Age 65	1,260.02	1,262.20	1,264.51	1,280.74	1,243.25	1,234.88	1,258.35	1,298.34	1,348.48	1,384.61	1,349.91
Age 66	1,333.34	1,176.89	1,275.72	1,201.11	1,279.76	1,286.73	1,331.57	944.09	856.84	1,157.49	1,300.07
Age 67	1,205.93	1,165.30	1,261.28	1,246.09	1,155.12	1,274.97	1,398.17	848.03	869.19	925.18	1,078.54
Age 68	1,062.62	1,050.64	1,191.53	1,217.22	1,238.22	1,183.47	1,367.90	918.91	922.04	679.81	678.86
Age 69	1,311.41	1,384.28	1,218.69	1,189.95	1,140.63	1,211.33	1,333.55	1,069.62	852.70	712.98	836.69

Table 9: Average monthly benefits of Female retired workers in dollars of 2005. *Adjusted by the ARF and the DRC*

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	926.15	899.80	897.24	889.07	890.88	921.42	905.06	931.88	938.98	946.07	908.38
Age 63	899.92	911.93	887.69	880.47	877.21	877.27	895.07	909.60	898.14	931.10	885.60
Age 64	916.81	930.03	912.09	886.62	869.56	908.99	925.39	944.52	988.25	965.87	958.82
Age 65	951.20	938.96	934.97	929.89	905.25	924.06	924.22	930.00	972.30	967.53	936.41
Age 66	943.55	896.61	956.38	920.27	947.29	941.04	983.33	823.85	867.93	813.65	918.73
Age 67	962.50	985.53	967.63	775.12	902.19	971.63	996.81	814.39	888.67	772.81	781.91
Age 68	988.59	829.98	808.16	778.87	823.43	949.39	925.39	785.52	662.28	789.03	822.48
Age 69	964.08	1,025.60	880.13	860.57	875.10	902.29	903.93	755.03	830.65	686.31	839.57

Table 10: t-statistics of Social Security monthly benefits: Males

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	-8.0485	-12.0391	-12.0371	-7.5286	-3.7941	5.9236	7.4083	11.8172	17.6262	19.0840	12.9759
Age 63	-8.4427	-5.3728	-7.2258	-7.1668	-5.3725	-4.4740	1.3357	0.3633	3.9241	7.0243	4.3034
Age 64	-2.9746	-2.5950	-1.7915	-2.7834	-2.7543	-2.0273	-1.0789	3.4206	4.4613	5.0305	4.6576
Age 65		0.2006	0.3866	1.8398	-1.5491	-2.5098	-0.1983	4.3225	9.1668	12.5245	8.2154
Age 66	2.0553	-2.1057	0.5090	-1.4214	0.5129	0.3134	1.1297	-4.7461	-6.4202	-1.6187	2.2612
Age 67	-0.7686	-1.3756	0.0236	-0.2809	-1.7136	0.3304	4.7137	-5.6247	-4.1352	-3.5897	-1.8140
Age 68	-2.2183	-2.2577	-0.9059	-0.6648	-0.2784	-1.3099	2.9139	-3.2463	-3.2274	-6.9940	-5.2632
Age 69	0.7077	1.3259	-0.4890	-0.7212	-1.5169	-0.7593	1.5287	-1.8202	-4.0705	-5.3359	-2.2697

Table 11: t-statistics of Social Security monthly benefits: Females

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	-3.4522	-7.3715	-8.0576	-9.5225	-9.7547	-4.5862	-7.7022	-3.1238	-1.8326	-0.8112	-7.2473
Age 63	-4.1989	-3.0617	-5.0003	-6.1377	-6.2426	-6.4374	-4.8627	-3.6144	-4.7035	-1.7065	-5.7265
Age 64	-1.8202	-1.1164	-2.0471	-3.4191	-4.9134	-2.3718	-1.4572	-0.3752	2.0109	0.7440	0.4103
Age 65		-1.0684	-1.3725	-1.8117	-4.1544	-2.6010	-3.0871	-2.2322	2.1959	1.6526	-1.3827
Age 66	-0.1590	-1.1458	0.1371	-0.7715	-0.0952	-0.2981	1.1986	-1.9225	-1.6426	-2.8306	-2.0403
Age 67	0.2064	0.5236	0.3410	-3.1788	-1.1499	0.5223	1.4068	-2.6913	-0.8889	-3.1912	-2.4065
Age 68	0.4840	-1.7215	-2.9704	-3.2030	-2.5353	-0.0305	-0.5830	-2.8440	-5.1789	-2.4343	-2.3084
Age 69	0.1571	1.1702	-1.5565	-1.5437	-1.3517	-0.8516	-1.0374	-4.0480	-2.1660	-4.5948	-1.9692

Figure 3: Average monthly retirement benefits of male beneficiaries: 1994-2004 (Table 8)

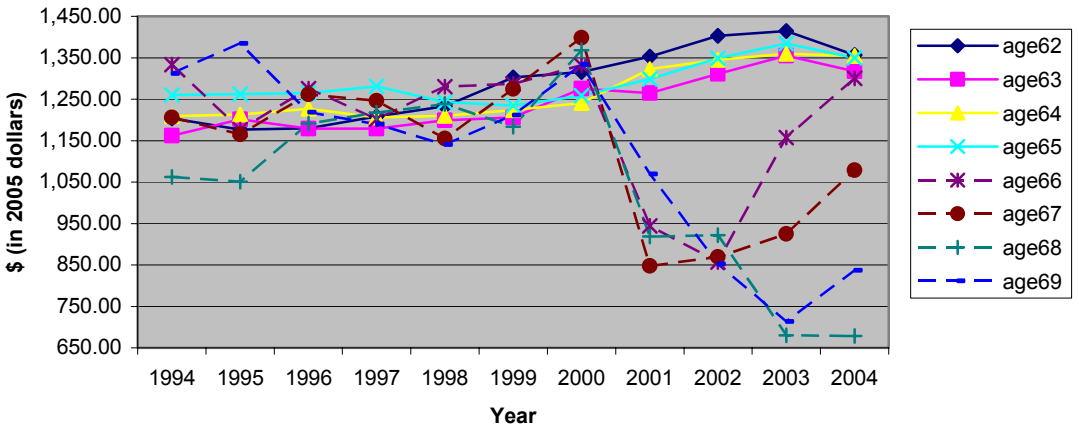
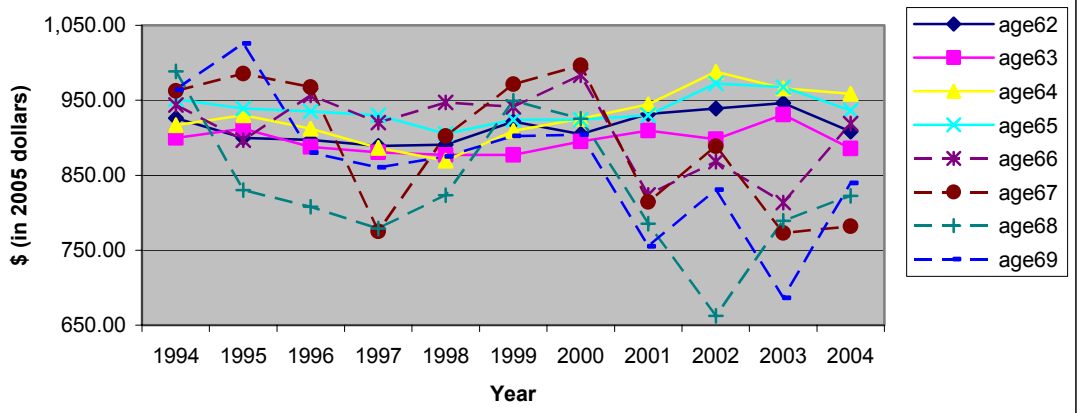


Figure 4: Average monthly retirement benefits of female beneficiaries: 1994-2004 (Table 9)



Appendix:

Table A1: Average PIA of new claimants. In dollars of 2005 (retired workers only)

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	940.78	926.23	935.13	953.19	973.71	1,034.55	1,046.03	1,080.50	1,127.71	1,142.03	1,103.01
Age 63	979.89	1,009.24	992.26	1,004.17	1,026.54	1,030.67	1,089.22	1,098.32	1,123.75	1,165.74	1,121.95
Age 64	1,018.19	1,021.65	1,047.72	1,013.85	1,012.43	1,039.77	1,061.02	1,135.15	1,154.62	1,165.67	1,181.94
Age 65	1,057.93	1,058.15	1,058.74	1,078.11	1,054.01	1,061.43	1,099.92	1,122.12	1,170.74	1,181.23	1,141.35
Age 66	1,136.01	1,026.72	1,101.08	1,053.64	1,121.91	1,124.77	1,232.29	887.25	856.65	986.29	1,172.39
Age 67	1,000.67	1,039.73	1,058.21	1,047.50	1,011.88	1,115.41	1,240.26	830.71	888.67	840.90	942.88
Age 68	1,001.07	941.18	977.90	969.08	992.46	1,078.06	1,222.81	845.29	757.86	751.68	796.67
Age 69	1,155.27	1,150.30	1,009.65	981.93	990.41	1,082.81	1,153.82	879.90	844.02	718.22	843.33

Table A2: t-statistics of PIA

Age/Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Age 62	-20.9420	-24.2018	-23.1928	-19.2652	-15.3388	-4.1060	-2.0489	3.7583	10.8637	13.3432	7.7827
Age 63	-7.9977	-5.0899	-6.7459	-5.5853	-3.2251	-2.7561	3.1105	3.8991	6.1921	9.6267	5.8529
Age 64	-2.7804	-2.4186	-0.6552	-2.8275	-3.0307	-1.2372	0.2103	5.0466	6.1515	6.5032	7.8343
Age 65		0.0343	0.1227	3.0688	-0.6182	0.5818	7.4898	11.3957	19.3562	20.0700	12.4059
Age 66	2.5193	-1.0137	1.7775	-0.1488	2.2147	2.6307	9.5604	-3.7035	-5.0770	-1.6894	7.9571
Age 67	-1.2032	-0.3850	0.0076	-0.2610	-1.2481	1.7761	7.6716	-4.8227	-2.9185	-4.0269	-1.8268
Age 68	-1.0134	-1.9625	-1.6702	-1.8942	-1.4107	0.4820	5.1924	-3.7229	-5.8324	-5.6851	-4.9683
Age 69	1.6174	1.6602	-1.0627	-1.3864	-1.4350	0.5483	2.5446	-3.3092	-4.1866	-6.7483	-3.5572